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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/571,266

03/09/2006

Yasushi Sasaki

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EXAMINER

CHAWLA, JYOTI

ART UNIT

PAPER NUMBER

1794

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/571,266	<b>Applicant(s)</b> SASAKI ET AL.	
	<b>Examiner</b> JYOTI CHAWLA	<b>Art Unit</b> 1794	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 December 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 10-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/9/06, 6/19/06, 4/26/07</u> .                                | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Group I (claims 1, 3-9), without traverse in the reply filed on 12/17/2009 is acknowledged.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-9 are indefinite for the recitation of "heating gum arabic in such a manner that the loss-on-drying is not more than 3%, or heating gum arabic in dry state that the loss-on-drying is not more than 3%." as these recitations render the claims indefinite. As recited in claims 1 and "until the loss-on-drying is not more than 3%, and subsequently heating the dried gum arabic." As recited in claim 4. As recited it is unclear whether the "loss-on-drying is not more than 3%" is being measured from the unmodified gum acacia as obtained from nature or from previously dried gum acacia, which has already incurred "loss-on-drying" during dehydration and subsequent processing. Applicant's disclosure discloses "loss-on-drying" of about 30% on page 6 and of less than 3% on page 8, as disclosed it is unclear as to which "loss-on-drying" proportion applies. Correction and /or clarification is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

A) Claims 1, 3-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inata et al (JP 2000-166489 and Machine translation), hereinafter Inata in view of Industrial gums by Whistler et al (page 205), hereinafter Whistler.

Regarding claims 1, 3 and 9, Inata discloses a feature whereby gum arabic with a drying loss of 15% or less to 50% by weight or less is heated to a temperature of 60 to 140°C under low pressure conditions in order to obtain modified gum arabic (claims and paragraph [0004]), and further indicates that said modified gum arabic suppresses coloration and exhibits a superior emulsification power

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(paragraph [0004] and the examples). Regarding claims 3, 5 and 8, Inata machine translation paragraphs [0006-0007] disclose, heating of raw material gum arabic for 60-140 °C for 30 minutes - 10 hours. In these conditions, prolonged heating is comparatively preferred. Heating is most preferably performed at 105 °C - 130 °C for 30 minutes - 3 hours. Inata also discloses "If the cooking temperature at 140 °C is exceeded, a possibility of generally coloring will become large. Below 60 °C, emulsification power does not improve so that it may state later."

Regarding the heating atmosphere, Inata teaches that "The above-mentioned heating can be performed also in a gas or a fluid. Since there is a possibility of coloring if it carries out under existence of air middle oxygen when carrying out in a gas, it is good to carry out in the inactive gum which does not react to gum arabic. As inactive gas, nitrogen gas, gaseous helium, carbon dioxide, a steam, etc. can be mentioned." (machine translation paragraphs [0007] ).

Further regarding the recitation of heat treatment under reduced pressure (claim 5), Inata discloses "performing heating in a gas under decompression" to avoid discoloration. Although the above-mentioned inactive gas can be used of course as a gas in this case, it can use without air also producing coloring depending on the grade of decompression. (machine translation paragraphs [0007] ).

Regarding the recitation of "heating gum arabic in such a manner that the loss-on-drying is not more than 3%, or heating gum arabic in dry state that the loss-on-drying is not more than 3%." As recited in claims 1 and 4, applicants' disclosure (Page 8, Lines 9-25) disclose that "the level that gum arabic is dried can be evaluated on the basis of the loss-on-drying of gum arabic. The term "loss-on-drying" used herein denotes the amount of moisture loss (% by weight) when the target gum arabic is dried by heating at 105°C for 6 hours, and is usually used as an indication of the moisture content of gum arabic, in other words, the dry degree of gum arabic. The loss-on-drying of the gum arabic is preferably not more than 3%. The fact that gum arabic has a loss-on-drying of

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not more than 3% denotes that the moisture content of the gum arabic is reduced by not more than 3% by weight when the target gum arabic is dried by heating at 105°C for 6 hours, taking the weight of gum arabic before drying by heating as 100% by weight.”

Further regarding the type of gum arabic used for the modification treatment, applicant discloses that “Furthermore, gum arabic (unmodified) is not limited in its moisture content. The moisture content of gum arabic (unmodified) as is usually available from commercial sources is reduced when dried by heating at 105 °C for 6 hours (loss-on-drying) of not more than 30 % by weight, preferably not more than 20% by weight, more preferably not more than 15% by weight. In the present invention, any gum arabic (unmodified) having such moisture content (loss-on-drying) can be suitably selected and used.” (Specification page 6, lines 25-32). Thus, the starting material used by the applicant has already incurred less than 15 to 30% loss of moisture on drying.

Regarding the initial loss of moisture incurred in drying unmodified gum arabic to a temperature of 105 C for 6 hours is not more than 30%” Inata discloses a loss of 15% or less during heat treatment as claimed (machine translation paragraphs [0005] ). Inata is also concerned with discoloration and enhancing emulsification properties of gum arabic after heat treatment (machine translation paragraphs [0005-0007] ). Inata is also concerned with loss of moisture and its effect on the emulsification property of the resulting product, as the reference discloses “If there is more loss on drying of raw material gum arabic than 50 % of the weight, the temperature of goods of gum arabic will not fully go up, and the denaturation gum arabic which was excellent in emulsification power is not obtained.” Inata however is silent about clarifying whether the loss of moisture of gum arabic is compared to gum arabic as obtained in nature or as compared to a commercial unmodified dried state. Further, it is noted that heat treatment time and temperature as taught by Inata falls in the recited range of the applicant and reduced pressure conditions are also taught by Inata as instantly claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the

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time of the invention that given starting or raw gum arabic of similar nature and similar moisture content, the method of modifying gum arabic as disclosed by Inata will yield loss-on-drying of gum arabic similar to loss-on-drying of gum arabic that have been instantly claimed.

Further, applicants are reminded that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Regarding claims 6 and 7, Inata discloses "raw material gum arabic, gum arabic, such as commercial powder and granularity, can be used" (machine translation paragraphs [0005] ). This raw material gum arabic is secrete obtained from the trunk of the legume Acacia (Acacia Senegal L, willdenow) or species of the same genus. Although it oozes with nature from the trunk of Acacia Senegal and what was solidified is collected, an incised wound is made to attach and ooze at a trunk, and this is dried and built." Inata, however, is silent about the particle size of gum arabic "an average particle diameter of not more than 1.5 mm." As disclosed in claim 6 and also the limitation that "wherein gum arabic to be heat treated is spray-dried" as recited in claim 7. Gum arabic was known and available in powdered form at the time of the invention, e.g., Whistler discloses that spray dried powder of various grades (sizes) was known and available (Page 205, last paragraph) at the time of the invention. Therefore, it would have been well within the purview of one of ordinary skill in the art at the time of the invention to modify Inata and choose a fine spray dried powder of unmodified gum arabic in order to perform the heat treatment under reduced pressure. One of ordinary skill in the art would have been motivated to choose a fine powdered gum arabic of the

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invention, at least in order to perform heat treatment (to enhance the emulsification properties) to the form of gum arabic raw material, which may be most readily usable with minimal further processing in variety of industrial applications, such as, food and pharmaceuticals etc.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JYOTI CHAWLA whose telephone number is (571)272-8212. The examiner can normally be reached on 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JC  
Examiner  
Art Unit 1794

/Keith D. Hendricks/  
Supervisory Patent Examiner, Art Unit 1794